

with such force as to carry down a great quantity of air in very minute division—so much, in fact, that I thought it was done by an air-pump, until the attendant obliged me by allowing me to go behind the scenes and inspect the contrivance.

The “monde” de la mer in these tanks were truly wonderful: large fish a yard long, soles and skates of ample proportions, with lobster, crayfish, and numerous species of fish of brilliant colours, from the Mediterranean. Hundreds of anemones made a sort of flower-garden; and the effect was so interesting and so beautiful that it has but to be seen to be believed and appreciated.

The aquarium at the Zoological Gardens, which formerly attracted so much attention, was a mere baby to it, and gave no idea of the behaviour of the great-grandfather fish which are here contained.

It occurred to me that, if I was a child and fell in love with this beautiful exhibition, there must be hundreds and thousands of grown-up children who would also like to be introduced to the “Monde de la Mer.” Then why not get up a bigger “mer” and a more distinguished “monde” at the Zoological Gardens?

The place would be the bank sloping to the canal, looking towards the north; for fish have a decided natural objection to be cooked by a southern sun. And the moment I arrive in England I shall rush to the Zoo’ to see if perfidious Albion has copied the idea and out-mer’d and out-monde’d the “Monde de la Mer” of Paris.

I remain, my dear Sir,

Yours faithfully,

ALFRED SMEE.

Hotel Meurice, Paris.

Nov. 19, 1866.

#### *Bursting of a Monster Aquarium at the “Monde de Mer.”*

A curious accident happened two days ago at the Aquarium establishment on the Boulevard Montmartre. At about three in the afternoon the visitors were suddenly alarmed by a loud detonation. The glass of the largest of the reservoirs filled with sea-water gave way, and the contents were precipitated all over the place. The alarmed spectators hastened to make their escape, and fortunately no one was seriously hurt. One gentleman was slightly cut on the chin, the arm, and the knee by some fragments of glass. The cause of the accident is a mystery, the supposition, however, now being that the glass was not strong enough to resist the pressure of the water, as the vessel contained about 15,000 gallons, being the largest in the establishment, and measuring nearly 15 feet in length.—*Standard*, Dec. 14, 1866.

#### *On the Eyes of Caterpillars.* By HERMANN LANDOIS.

Although the eyes of caterpillars attracted the attention of so ancient an anatomist as Malpighi, the most different statements with regard to them are met with, and some recent authors have even completely denied their existence. These eyes, nevertheless,

appear to be constantly present in all species of caterpillars. They are found to the number of six on each side of the head, immediately above the articulation of the mandibles. The cornea of each of them strikes one directly, according to M. Landois, by its division into three segments. From the centre of the cornea three lines diverge at angles of  $120^\circ$  towards the margin, and divide this organ into three equal parts, each of which presents a curvature of its own.

Directly beneath the hypoderm (chitinogenous stratum) of the cornea, there are three crystallines, corresponding to the three parts of the cornea, and each formed of striated and nucleated fibres, arranged concentrically around the centre of the organ. Beneath this triple crystalline is an organ which M. Landois regards as an iris. It is a kind of diaphragm formed by about thirty-five fibres directed like rays from the periphery to the centre of the iris, and strongly pigmented. These fibres are very contractile, and probably of a muscular nature. The centre of the iris is pierced by a triangular aperture with rounded angles; and from each angle issues a yellow appendage, to which the author gives the name of the loop of the iris.

Beneath the iris comes that part of the visual apparatus which, in faceted eyes, has generally received the name of the *crystalline body*. According to M. Landois, this body is not perfectly limited, except by the action of reagents, and originally it was in continuity of tissue with the nervous branch which follows. In this case M. Leydig's previsions would be confirmed, and it would be necessary to regard the supposed crystalline body as a terminal nervous inflation of the optic fibres. This inflation is divided, like the cornea, the crystalline, and the iris, into three parts, each of which is continued into a nervous fibre, which may be traced, attached to the others, as far as the optic nerve. The fibres and dilatations are protected by a neurilemma.

The nervous portions of the eye are protected by three masses with violet pigment, which the author calls *enveloping bodies*; in fact they form an envelope round the optic nerve and the nervous inflation, only leaving between them a small aperture for the passage of the loops of the iris, which apply themselves to the nervous inflation. Lastly, the whole eye is protected by a muscular layer and by a double membrane which envelopes it.

M. Landois considers that the eyes of caterpillars are intermediate between simple and faceted eyes, and proposes for them the name of *compound ocelli*. In reality each of these ocelli is the complete homologue of an isolated element of a faceted eye. The author indicates in detail the homologies of these two forms of eyes—homologies which no one can miss seeing. A single surprising fact remains. In the faceted eyes, as has been demonstrated by M. Claparède, the whole organization is based upon the number four; in those of caterpillars, on the contrary, as M. Landois has just shown, it is based upon the number three. It will be interesting to ascertain by the study of chrysalids how the typical form of the eyes of the perfect insect succeeds that of the caterpillar.

The form of the eyes of caterpillars, and their position at the root of the mandibles, appear to be perfectly appropriate to the mode of life of these animals. The prehension and assimilation of food constitute the essential phenomena of their life. The exercise of sight is limited to the immediate perception of nutritive materials. The distance from the point of the mandibles to the ocelli being therefore the measure of average vision, this distance must be exceptionally short. The laws of optics necessitate in this case an extremely strong curvature of the crystalline; and this curvature is realized in all caterpillars. The office of the iris is no doubt to contract under the influence of too intense a light; for this organ is endowed with an extreme contractility. Lastly, the enveloping bodies, the muscular layer, and the enveloping membranes are very strongly pigmented, so as to concentrate the light upon the nervous elements.—*Siebold und Kölliker's Zeitschrift*, Bd. xvi. p. 27; *Bibl. Univ.* Nov. 25, 1866, *Bull. Sci.* pp. 272-275.

#### *Deep-Sea Life in the Ocean.*

In my Report to the British Association, at their last meeting, on dredging among the Hebrides, I quoted a paper by Professor Lovén on the results of the Swedish expedition to Spitzbergen in 1861 under Dr. Otto Thorell. A translation of that paper was sent to me by a friend from Copenhagen, and I had no opportunity of comparing it with the original. Professor Lovén has now pointed out to me a mistake in the translation, which, in justice to him, I hasten to correct. Instead of his saying that, from 60 to 80 fathoms down to the greatest depth known to be inhabited by animals, the bottom is "everywhere" covered with a soft and fine mud or clay, it should be "wherever" the bottom is so covered. This substitution of one word for another makes all the difference. The learned author was well aware of the existence of rocky ground, even at very great depths. I beg to offer my sincere apology to him for having thus misrepresented his views.

J. GWYN JEFFREYS.

25 Devonshire Place, Portland Place,  
1st Dec., 1866.

#### *Researches on the Geryonidæ.* By Professor HÄCKEL.

Among the Craspedote Medusæ the family of the Geryonidæ is distinguished by the length of the stomachal peduncle, which causes these animals to resemble umbrellas furnished with long handles. This character certainly occurs also throughout the family Geryonopsidæ established by Agassiz, and in some Oceanidæ and Thaumantiadæ. But the Geryonidæ are distinguished from these families by the peculiar form of their generative organs, which extend like delicate leaves in the subumbrella, without projecting into the cavity of the umbrella. Gegenbaur, indeed, ascribes to the Geryonidæ another important character connected with the gastrovascular sys-